

CLAIMS

1. Light source device for illuminating microdisplay devices, e.g. a DMD, LCOS, LCD, GLV, etc,
c h a r a c t e r i s e d i n that it comprises
 - 5 - a housing having a specularly and/or diffusely light reflective interior surface and an exit aperture adapted to the shape and size of the microdisplay device, wherein the housing defines a cavity,
 - at least one light emitting device mounted on or in wall(s) of the housing, for emitting light into the cavity,
 - 10 - electrical power supply unit(s) and control electronic unit(s) for controlling the light emitting device(s).
2. Device according to claim 1, c h a r a c t e r i s e d i n that it comprises at least two light emitting devices with separate power supply units.
3. Device according to claim 1, c h a r a c t e r i s e d i n that it comprises at least
 - 15 two light emitting devices supplied with electricity from a single power supply.
4. Device according to claim 1, 2 or 3, c h a r a c t e r i s e d i n that the at least two light emitting devices are adapted for emitting light with different wavelengths.
5. Device according to claim 4, c h a r a c t e r i s e d i n that the control unit is adapted to control on and off switching of the light emitting in sequences.
- 20 6. Device according to claim 4, c h a r a c t e r i s e d i n that the control unit is adapted to adjust the wavelength and brightness/intensity of the light emitted from the exit aperture by individual control of the light emitting devices or groups of light emitting devices.
7. Device according to claim 5, c h a r a c t e r i s e d i n that the light emitting
 - 25 devices are adapted to emit red (R), green (G) and blue (B) light, and that the control unit is adapted to switch said devices on and off to provide cycles of said colours to the microdisplay device.
8. Device according to claim 1, c h a r a c t e r i s e d i n that it comprises optical components inside the cavity.
- 30 9. Device according to claim 1, c h a r a c t e r i s e d i n that it comprises a lens in the light path, preferably inside the cavity.
10. Device according to claim 1, 7 or 8, c h a r a c t e r i s e d i n that it comprises a transparent window or lens for closing the aperture in order to provide a closed, contamination free cavity.

11. Device according to claim 1, characterised in that it also comprises a light sensor.

12. Device according to claim 10, characterised in that the light sensor is connected to a control electronic unit to adjust the optical characteristics of the light sources.

13. Device according to claim 1, characterised in that the housing is made of a material with good thermal conductivity properties.

14. Device according to any of the claims 1-12, characterised in that it comprises a cooling system.

15. Device according to claim 13, characterised in that the cooling system is completely or partly embedded in the housing.

16. Device according to one of the claims 1-14 characterised in that it comprises a temperature sensor.

17. Device according to claim 15, characterised in that the temperature sensor and/or the cooling system is connected to the control electronic unit.

18. Device according to one of the claims 1-16, characterised in that it comprises imaging and/or integrating optics in the light path outside the housing, from exit aperture to micro display.

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